4.10 Assign the correct isomers A or B to data below consisting of a proton NMR spectrum at 250 MHz.

4.11 Tricyclic compound C, derived from a Diels-Alder cyclo-addition, has a rich proton NMR spectrum (500 MHz, CDCl₃), which is shown below. Analyze the multiplets to make chemical shift and coupling constant assignments.
4.12 Distinguish between the three alternative structures D, E, and F by analyzing the multiplet patterns in the NMR spectrum (500 MHz, CDCl₃) shown below.
4.13 The proton NMR (500 MHz, CDCl3) of G below displays an extremely complex pattern in the region of 3.2 ppm.

(a) Label the “spin type” of the $sp^3$ proton spins according to the convention shown in Table 4.2.

(b) Can $J$ values can be reported for these protons by inspection?